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CONTENTS

Editorial
Food Technology and World Health 147

Prediction of Thiamine and Ascorbic Acid Stability in Stored Canned Foods. Myer Freed, Sadie Brenner, and Virgil O. Wodicka 148

The Prooxidant Effect of Ascorbic Acid and Cysteine in Aqueous Fat Systems. Dorothy A. Scarborough and Betty M. Watts 152

The Effect of Aging Verus Aging, Freezing, and Thawing on the Palatability of Eviscerated Poultry. Frances Carlin, Belle Lowe, and George F. Stewart 156

Keeping Quality of Frozen Bakery Products. H. G. Beattie, E. C. Edelmann, and W. H. Cathcart . . . 160

Operation of a Routine Testing Group in a Small Laboratory. J. C. Hening 162

Effect of Freezing Rate on Fruits. Frank A. Lee, Willis A. Gortner, and Joanne Whitcombe 164

Studies on the Rate of "In Vitro" Pancreatic Hydrolysis of Protein. Myer Freed, Sadie Brenner, and Harry L. Fevold 170

A Procedure for the Quantitative Estimation of Salmonella in Dried Egg Products. John C. Ayres 172

Notes and Letters
"Modesty Forbids" 177

Selected Abstracts 2

Regional Section News 5

Book Review 8

Authors of papers intended for publication in Food Technology should request from the Editor's office a copy of a booklet, titled "Suggestions to Authors," and see that their papers are in the form specified therein before they are sent to the editor.

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Regional Section News

CHICAGO SECTION

On March 21, Dr. G. H. Benham, Associate Professor of Biochemistry of the Illinois Institute of Technology, presented to the Chicago Section the subject "Significance of Man's Dietary Habits to Food Technologists."

Dr. L. A. Hall, a member of the Program Committee for the annual I. F. T. Conference in San Francisco next July, reports that the industrial and production section of the program has been completely filled.

Frank M. Beegle, chemical consultant and President of Protective Coating Corp., Des Plaines, Ill., died at his home on February 22. He was a member of the American Institute of Chemists, the American Chemical Society, the Chemical Arts Forum, and a national member of the Institute of Food Technologists.

NORTHERN CALIFORNIA SECTION

The June meeting of the Northern California Section is scheduled for June 9 and will be devoted to matters pertaining to the National Meeting in July.

The annual meeting of the Section is planned for December 1. It will be an all-day session devoted to research papers contributed by members.

Professor W. V. Cruess, who was injured in an accident on his ranch, is now sufficiently recovered to be discharged from the hospital and to be up and around with the aid of a brace. He even reports to his office for brief periods. He has our best wishes for his continued recuperation.

DeWitt F. Sampson, Assistant Manager of the American Can Company's Pacific Research Division, is being transferred about June 15 to the Central Laboratory at Maywood, Illinois, as Section Chief. His place is being filled by Dr. John M. Jackson, Assistant Section Chief at the Maywood Laboratory and currently Secretary of the Chicago Section of I. F. T.

At the meeting of the Section on April 21, Edwin L. Mitchell of the Richmond-Chase Co., attired nattily in a red and white checkered gingham shirt and blue denim jeans, was introduced as the fashion note for the National Convention barbecue. Members were asked to take notice and wear similar clothes to provide atmosphere at the barbecue.

At the meetting of the Section on June 9 in San Francisco, the membership was briefed on its duties at the National Convention.

NORTHEAST SECTION

As New England is an important center of chocolate and candy manufacture, the dinner meeting of the Northeast Section on March 24 was devoted to a symposium on "Problems of the Confectionery Business." Four papers were read as follows:

"Problems of the Chocolate and Cocoa Manufacturer." Mr. H. O. Frye, General Manager, Walter Baker Division, General Foods Corporation, Dorchester, Mass.

"Problems of the Coated Confectionery Manufacturer." Mr. Arthur E. Page, Production Manager, Daggett Chocolate Company, Boston.

"Problems of the Flavor Manufacturer as Pertains to the Confectionery Industry." Dr. N. C. Larsen, Research Director, Polak & Schwarz Inc., New York, N. Y.

"Problems of the Equipment Manufacturer as Pertains to the Confectionery Industry." Mr. D. S. Greer, Vice-President, J. W. Greer Company, Cambridge, Mass.

Mr. Robert L. Swaine, one of the newer members of the Section, formerly in the food department of the First National Stores and now with Arthur D. Little, Inc., was married on March 26 to Barbara E. Allen. The young people are living in Brighton.

Dr. J. A. Dunn, of the General Foods organization, who changed last July from the Diamond Crystal Salt Division to the Atlantic Gelatine Division, now has a home of his own at 7 Lewis Road, Winchester, Mass.

SOUTHERN CALIFORNIA SECTION

On March 16, following a dinner meeting, sixty members of the Southern California Section and their guests heard a talk by Dr. R. W. Hodgson, Professor of Subtropical Horticulture, University of California at Los Angeles. His topic was "The California Fruit Industry." The development of the fruit industry in California was traced, and many interesting and informative facts were given. There were also three 5-minute talks by members concerning problems relating to their particular industries. The interest of the group was evidenced by the many questions asked and the long discussion period, which followed Dr. Hodgson's talk.

ST. LOUIS SECTION

On March 23, members of the St. Louis Section met at the Hyde Park Breweries Association, where they heard a talk on "Chemical Engineering in the Food Industry," given by Mr. W. L. Faith of the Chemical Division, Corn Products Refining Company, Argo, Illinois.

NEW YORK SECTION

The March meeting of the New York Section of I. F. T. was held jointly with the New York Section of the Cereal Chemists. Mr. Joseph Jacobs talked about the problems of food manufacturers in manufacturing foods to comply with Jewish dietary laws.

At the meeting of the Section on April 20, Dr. Edy Velander, Professor and Managing Director of the Swedish Royal Academy of Engineering Sciences, spoke on "Advances in Swedish Food Technology."

PHILADELPHIA SECTION

On March 10, the Philadelphia Section held a dinner meeting, following which they were addressed by Dr. Arnold H. Johnson of the Sealtest Research Laboratories, National Dairy Products Corporation, Long Island, N. Y. Dr. Johnson spoke on "The Use of Milk Powder in the Baking Industry."

MARYLAND SECTION

On March 11, the Maryland Section met for its regular session at the Hotel Stafford in Baltimore. Following the dinner, Major John W. Schrank, Production Director of J. H. Filbert, Inc., spoke on "Processing of Fats and Oils and Their Uses in Margarine."

At a convention of the Tri-State Packer's Association held recently in Baltimore, Mr. Maurice Siegel of Strasburger and Siegel Laboratories and Vice-Chairman of the Maryland Section of I. F. T. spoke on "The Control of Spoilage Through Sanitation."

Abstracts

(Continued from page 2)

hydrolysis, the rate or retrogradation of potato amylose increases to a maximum, and then continuously decreases. Corn amylose, though lying nearer the maximum rate of retrogradation, goes through a similar increase and decreases in rate of retrogradation when its molecular magnitude is decreased by hydrolysis. For both amyloses maximum retrogradation seems to occur at viscosities of η sp/c of about 0.5.

150I. Influence of autoclaving dry peas on some properties of the proteins.

EVANS, R. J., AND ST. JOHN, J. L. *Cereal Chem., 25,* 377-85 (1948).

The influence of autoclaving dry peas on the peptization and digestibility of the protein has been determined. The percentage of nitrogenous compounds peptized by different salt solutions was decreased by autoclaving the peas, particularly when drastic autoclaving was employed. The liberation of amino groups by *in vitro* enzymic digestion of dry peas was decreased by autoclaving, as was the liberation of methionine and lysine by *in vitro* trypsin and erepsin digestion.

MICROBIOLOGY

151I. Paper and paper board in the food industry — public health aspects.

TANNER, F. W. *Am. J. Public Health, 38,* 1688-93 (1948).

Coliform bacteria are absent in the pulp stream in paper mills and in finished paper. Bacteria are destroyed in paper mills by pulping under pressure with chemicals, bleaching with strong chlorine, and passage over drier rolls heated to high temperature. Many species die out in paper because of lack of moisture. Only aerobic spore-bearing bacteria survive. A bacterial count standard such as has been proposed for finished paper is of no value for determining sanitary quality of paper.

152I. Factors of sewage pollution of oyster beds in Galveston Bay.

WISE, R. I., WINSTON, J. B., AND CULLI, G. *Am. J. Public Health, 38,* 1109-17 (1948).

Coliform content of oysters and water above oyster reefs in Galveston Bay, Tex., decreased in the spring, remained low from July to December, and increased to high values in January. Oysters usually showed greater pollution than the water. The total volume of water entering the bay each month correlated with the degree of pollution. Water turbidity varied directly with the water volume and directly with coliform content.

153I. Preventing stream pollution.

WISNIEWSKI, T. F. *Food Packer, 30,* 62-4, Jan., 1949.

Wisconsin is cracking down on canners. The Committee on Water Pollution employs field men for experimentation. Continuous flow, fill and draw chemical precipitation processes were developed. Biological, sand and carbon filtration, and effects of wastes on municipal systems have been investigated. Field men help the canners select the method most suitable for their type of operation. Lagooning and irrigation are most common where possible.

NUTRITION

154I. Fat in feeds.

HUNTER, J. E. *Flour and Feed, 48,* 26-27 (1948); *Comm. Fish. Abst., 2,* 11, No. 6.19, Jan., 1949.

A great amount of work has been done on the fat requirements of poultry and there is nothing in the literature to indicate that poultry needs much fat. A review of this work is presented. Considering the ingredients commonly used in poultry feeding, both the poultryman and the feed manufacturer can forget about the fat requirement of the chicken, for in any practical ration, the fat will fall within safe limits.

155I. Yeast for animals.

Ind. Bull., No. 250, 3-4, Jan., 1949.

Production of commercial yeast from pulp wood waste, sugar-mill residue, canning wastes, pear waste and wood sugars is discussed. All of these industries are in their infancy, but are potential sources of food yeasts both for the nutrition of humans and animals. Their principal use is expected to be in prepared animal feeds where they supply proteins and vitamins and result in increased milk production and increased rates of growth. About 15,000 tons of dry yeast are produced annually which is an increase of 400% over prewar production. Use of industrial waste in the production of yeast would materially lessen the stream pollution problem now existent.

156I. Algae may avert famine.

SPOEHR, H. A., AND MILNER, H. W. *Sci. N. L., 55,* 6, Jan. 1, 1949.

The microscopic freshwater alga, Chlorella, may become a source of food supply for world populations of the twenty-first century. Under controlled conditions, Chlorella is capable of producing as much as half its weight as protein, or up to three-fourths its weight as fat. Only mineral salts, water, and sunlight are needed for growth.

157I. Trypsin inhibitor. VIII. Growth inhibiting properties of a soybean trypsin inhibitor.

BORCHERS, R., ACKERSON, C. W., AND MUSSEHL, F. E. *Arch. Biochem., 19,* 317-22 (1948).

A partially purified trypsin inhibitor was prepared from raw soybean oil meal by acid extraction, simultaneous papain digestion and partial precipitation and purification with $(NH_4)_2SO_4$. This inhibitor preparation had no effect on the growth of chicks or rats.

158I. The effect of heat on the nutritive value of lactalbumin. I. Growth on diets containing heated proteins.

DAVIS, R. M., RISSO, P., AND SMITH, A. H. *J. Nutr., 37,* 115-26, Jan., 1949.

The nutritive value of lactalbumin is diminished by heating the protein. This decrease appears to be the result of lowered digestibility due to a change in the linkages between the amino acids, which renders them less susceptible to enzymatic hydrolysis.

159I. Self selection of diet. IX. The appetite for thiamine.

SCOTT, E. M., AND VERNEY, E. L. *J. Nutr., 37,* 81-91, Jan., 1949.

Rats suffering from thiamine deficiency show a preference for diets containing as little as 0.1 and as much as 1000 p.p.m. of thiamine. The appetite for thiamine-containing foods was not universal in thiamine deficient rats, and a small minority always made a poor choice. Rats fed a critically low concentration of thiamine were in better condition than rats offered a choice between this diet and a thiamine-free diet. Appetite for thiamin-containing foods was not established until the animals were distinctly deficient as judged by weight gain and food intake. It was concluded that while learned appetite for thiamine can lead to better nutrition than would wholly random eating, it can, at best, only approach the benefit obtained by obligatory eating of a diet prescribed on the basis of known requirements.

160I. Nutritive value of canned foods. Effect of time and temperature of storage on vitamin content of commercially canned fruits and fruit juices (stored 18 and 24 months).

SHEFT, B. B. et al. *Ind. Eng. Chem., 41,* 144-5, Jan., 1949.

During the first 12 months of storage, elevated storage temperatures accelerated losses of ascorbic acid and thiamine more than did extended storage periods. This was evident in the warehouse samples as well as in those stored in constant temperature chambers. Carotene retentions in tomato juice

were excellent throughout the storage period. In whole tomatoes and in peaches, losses were greater after storage for 24 than for 18 months. Retentions of niacin were excellent in peaches and good in tomatoes and tomato juice stored for two years. Riboflavin was retained very well in tomatoes and tomato juice.

161I. Biological examination of the influence of drying on the nutritive value of the nitrogen-containing substance in feed and foodstuffs.

ZIMMERMAN, G. *Mitt. Gebiete Lebensm. Hyg., 39,* 71-88 (1948); *Comm. Fish. Abst., 2,* 13, No. 6.139, Jan., 1949.

The nutritive value of the protein in milk, casein, meat, grains, peanuts, fish meal, cottonseed meal, and grass decreases by heat-drying, while the protein of legume seeds, particularly of soybeans, improves up to a certain temperature. The biological value of N in feed and foodstuffs is characterized by 3 data, the true digestibility, the biological valence, and the N-net value. With the exception of legumes, the nutritive value of N decreases as the drying temperature and time increases, especially when the material is already dehydrated. Feeding experiments with rats were carried out to determine, by means of the 3 data, the influence of drying time and temperature on the N-contg. substance of air-dried lucerne leaves (alfalfa). In an attempt to explain the experimental results, it was suggested that, under the influence of increasing temperatures, proteolysis-preventing substances are formed which decrease the digestibility of N-containing food, or structural changes may occur so that the absorbability of certain essential amino acids is decreased or prevented.

FOOD PRODUCTS

CEREALS AND GRAINS

162I. Corn germ removal.

SINGER, P. A., AND DEOBALD, H. J. Assignors to Allied Mills, Inc. 2,459,548. Jan. 18, 1949.

The method which comprises supplying only sufficient water to corn to bring the moisture content thereof to 20-30% by weight, maintaining the corn in the presence of the added moisture for a short period sufficient to distribute the moisture substantially uniformly through the corn, cracking the corn to loosen the germ, supplying additional moisture to the corn to form a starch liquid, violently agitating the corn in the presence of the added moisture to produce a starch liquid having a higher specific gravity than that of the corn germ, and separating the germ by flotation from the corn in the presence of the starch liquid.

FISH

163I. Amino acids in fishery products. II.

DEAS, C. P., NEY, P. W., TARR, H. L. A. *Fish. Res. Bd. Canada. Pac.,* No. 77, 97-9, Dec., 1948.

Fish meals, stickwaters, condensed fish solubles, waste waters, eggs, milts were analysed for amino acids. Fish meals showed the best overall source of essential amino acids.

FLAVORINGS

164I. Vanilla bean culture.

Ind. Bull., No. 247, Oct., 1948.

The recent discovery by Knudson of Cornell of how to make vanilla seeds germinate is expected to lead the way to solving many problems in vanilla culture. The new method offers hope that new strains of the plant may be developed which will be resistant to vanilla root rot which now limits the life of a vanillary to about 7 years.

MILK AND DAIRY PRODUCTS

165I. Factors to consider in making high quality chocolate milk drinks.

THACKER, W. C. *Southern Dairy Products J., 43,* 102-3, 116, July, 1948; *J. Dairy Sci., 13,* A140, No. 363 (1948).

Six desirable characteristics for chocolate milk or chocolate drinks: (a) High quality milk or part-skimmed milk. The minimum fat standard for whole skim milk should be met; (b) Mild chocolate flavor. The amount of flavor used ranges from 1.0 to 1.5% cocoa or 1.5 to 2.25% liquor chocolate; (c) Little or no sedimentation with a low to medium viscosity. Special finely-ground cocoas are on the market, and sodium alginate will prevent sedimentation at a low viscosity. Homogenization increases sedimentation; (d) Elimination of the ragged dark-colored cream layer. This can be prevented by pasteurization at 160 to 165° F. for 15 to 30 minutes and the addition of stabilizers; (e) Light to medium red-brown color; (f) Medium to high sweetness. Consumer demands differ from about 5 to 8% sugar. Standard composition and processing methods are important.

166I. Lactating factors for dairy cows in dried grapefruit peel.

DAVIS, R. N., AND KEMMERER, A. R. *J. Dairy Sci., 31,* 973-5 (1948).

Four pounds daily of dried grapefruit peel added to an alfalfa hay ration increased milk production. An equal amount of a grain mix did not maintain this increase. Supplementing a ration of alfalfa hay and concentrate mix with oat pasture definitely increased milk production. It is concluded that dried grapefruit peel contains factors which stimulate milk production in dairy cows.

PECTINS—JAMS AND JELLIES

167I. Tamarind-seed jellose ("pectin"): its jellying properties.

RAO, P. S. *J. Sci. Ind. Res. India, 7,* B 89-90 (1948); *Brit. Abst., BIII,* 387, Nov., 1948.

Tamarind-seed jellose differs from fruit pectins in not being a Me ester of polygalacturonic acid but a carbohydrate composed of xylose, galactose, and glucose. Nevertheless it has good jellying properties, which depend on: (1) sugar concn., for which the optimum val. is 65-70 g. per 100 ml. (115 g.) of the jelly; (2) jellose concn., which should be 0.7-0.9% on the wt. of the final jelly compared with 0.2-1.0% in the case of fruit pectins; (3) the pH of the medium, which may vary from 1.8 to 9.8 for tamarind-seed jellose in contrast with fruit pectins which do not form jellies at pH>4 and give optimum results at pH 2; and (4) temp. and duration of heating, which adversely affect jellying by fruit pectins, with the loss of ~ 1/3 of their original jellying power after boiling for 1 hr., whereas tamarind-seed jellose is unaffected by boiling in aq. solution for 2 hr. Firm, transparent jellies are prepared from tamarind-seed jellose by wetting 0.8 g. with EtOH, adding 65 ml. of H_2O bringing to the boil, adding 65 g. of sugar, and reducing the wt. of the solution to 115 g. by boiling for ~ 10 min. The strengths (by Baker's method, B., 1926, 213) of jellies prepared from tamarind-seed jellose, and orange, guava, and apple pectins were 100, 65, 40 and 35, respectively.

168I. Cold processed fruit spread.

JOHNSON, G., AND BOGGS, M. M. Assignors to the United States of America as represented by the Secretary of Agriculture. 2,459,431, Jan. 18, 1949.

A process of preparing gelled fruits in which a fruit of the group consisting of fruit juice, pureed fruit, pureed fruit containing crushed fruit, and pureed fruit containing sliced fruit, is mixed with an amount of powdered high methoxyl pectin not to exceed 1% of the finished product by weight, and with an amount of sugar such that the mixture at this stage does not contain in excess of 30% of soluble solids by weight; stirring the mixture at room temperature until the pectin is hydrated; adjusting the pH of the mixture to 3.5 or below by adding a fruit acid, when the pH of the mixture is about 3.5; then adding more sugar in an amount to total 40 to 55% of added sugar and to result in a finished product having from 45 to 60% of soluble solids, the mixture being allowed to stand at about 70° F. to 100° F. until gelled.

VEGETABLES

169I. Research on harvesting, transportation and storage of potatoes—a review of recent literature.

LUTZ, J. M., WRIGHT, R. C., AND EDGAR, A. D. *Am. Potato J., 25,* 437-45 (1948).

Comparative studies in the field of sprout inhibitors show that the use of the methyl ester of naphthalene acetic acid, or maintenance of atmosphere of 10.5 percent CO_2 and 13.6 percent

O_2, were efficient. Serious losses in ascorbic acid content occur during storage. The ascorbic acid content varied with varieties, seasons, and within the same varieties. Harvesting time, type of culture, temperature in storage, and amount of water used in cooking were all found to have an effect on the ascorbic acid content. There is a correlation between specific gravity of the raw product and the mealiness of the cooked product. Potatoes with high specific gravity gave a larger yield of the dehydrated product.

PHYSICAL CHEMISTRY

170I. Distribution of molecular weights of pectin propionates.

OWENS, H. S., MIERS, J. C., AND MACLAY, W. D. *J. Colloid Sci., 3,* 277-91 (1948).

A number of pectins have been esterified to form the corresponding propionates. These compounds are readily fractionated according to molecular weights by formation of a saturated solution in a suitable solvent system at a high temperature, followed by reduction of the temperature and repetition of the operation several times. The molecular weight of the individual fractions has been measured and it was found that viscosity- and weight-average molecular weights of pectin propionates are identical.

171I. A metastable state of gelatin obtained by desiccating it at an elevated temperature.

PINOR, R., AND POURADIER, J. *Compt. Rend., 227,* 190-2 (1948); *Chem. Abst., 42,* 7604^a, (1948).

Dry gelatin prepared by exaporating solutions for 2 to 4 hours at 60° C. had the following properties: (1) more brilliant surface than gelatin from solutions that had gelled, (2) went into solution with practically no swelling, (3) dissolved at a lower temperature than gelatin from solutions that had gelled, (4) lower melting point than ordinary gelatin, (5) solutions set to rigid gels. It is believed that gelatin prepared in this manner is unimolecular and free from association.

172I. Age of eggs revealed by color under ultraviolet light.

WILSON, W. R. *Sci. N. L., 54,* 135 (1948).

Old eggs appear purple in color, while really fresh ones glow scarlet in ultraviolet light. Oxidation causes a chemical change in the shell which results in the color switch.

Book Review

ADVANCES IN FOOD RESEARCH, VOLUME I. Edited by E. M. Mrak, University of California, Berkeley, California, and G. F. Stewart, Iowa State College, Ames, Iowa. Academic Press, Incorporated, New York, New York, 1948. 459 pages. Price $7.50.

The initial volume of a series designed to "provide a medium in which every phase of food research may be exhaustively and critically reviewed on a continuing basis." For future volumes the editors, and an editorial board of eleven eminent scientists in the field of food research, will seek more contributions which are "exhaustive, critical, integrating, and of fundamental importance to the development of food research as a whole."

Volume I contains ten contributions. Five reviews are on specific commodities: 1. Factors affecting the palatability of poultry, 2. Physiology and chemistry of rigor mortis in beef, 3. Deterioration of processed potatoes, 4. Nonenzymatic darkening of fruit products, 5. Factors influencing the shelf life of dried whole eggs. The other five reviews are on general subjects: 1. Factors influencing the vitamin content of canned foods, 2. The physiological basis of voluntary food intake, 3. Factors influencing the vitamin and mineral content of vegetables, 4. Microbial inhibition by food preservatives, 5. High-polymer pectins and their deesterification.

Each contribution is a complete coverage of the subject matter from a technical viewpoint, including a historical review and a compilation of the recent advances. Investigators familiar with the subject matter of a particular review may find too large an emphasis on the historical facts.

This and future volumes will be an excellent source of information on fields of food research which are not sufficiently broad to warrant publication by themselves in book form.

WALTER A. MACLINN.

BIOCHEMICAL PREPARATIONS SERIES. John Wiley & Sons has announced a new series of annual volumes on the preparation of biochemical compounds to be known as the "Biochemical Preparations Series." Volume I, edited by Herbert E. Carter of the Department of Chemistry, University of Illinois, was published on February 15.

The series will be similar in organization to the well-known Wiley "Organic Syntheses Series" and will perform the same function for biochemists as "Organic Syntheses" performs for organic chemists. New volumes in the "Biochemical Preparations Series," incorporating the latest information in the field, will appear at yearly intervals. As in the "Organic Syntheses Series," the preparations in each volume of the new series are subjected to laboratory checks under standard conditions to insure the accuracy of methods presented. In addition, preparations already included in biochemical literature are reworked for accuracy and clarity before publication in "Biochemical Preparations."

NEW COURSES AT THE STATE COLLEGE OF WASHINGTON

Three new courses have been added to the schedule of studies in *Fruit and Vegetable Products and Food Processing* of the Department of Horticulture at Washington State College, as announced in the new 1949 *Annual Catalog*.

Two of these courses cover advanced instruction in canning, freezing and other food processing operations, as well as quality control and food inspection. Basic physical, chemical and microbiological principles are emphasized. The third is a seminar course for seniors and graduate students; here students and faculty will get together for critical reviews and discussion of recent advances in food technology.

Instruction of the new courses will be under the direction of Dr. C. L. Bedford and Dr. Edward Ross, assisted in the laboratory by Mr. Gail Norton.

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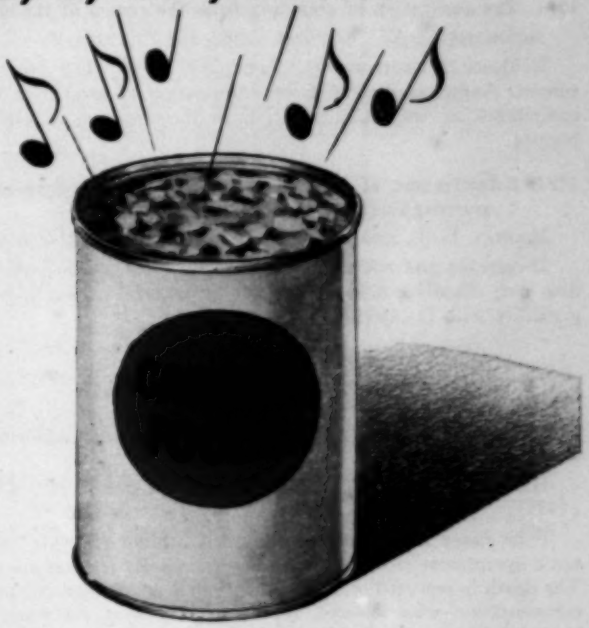

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